

AMATEUR SATELLITE REPORT

AMSAT's Newsletter for the Amateur Space Program.



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"Best Ever" Say Meeting Attendees

According to many attending AMSAT's Space Symposium and Annual Meeting 12 November, it was the best of its kind ever. Held at the Kossiakoff Center, Applied Physics Laboratory of the Johns Hopkins University, the day-long Saturday event capped months of planning to make the event noteworthy. The Applied Physics Laboratory is 30 miles northwest of Washington, D.C.

The first of approximately 200 to attend began arriving for registration at 8:00 AM. They were greeted by hostesses for AMSAT including XYLs of W3IWI (Elizabeth), K1HTV (Phyllis), W3XO (Mattie) and ZL1AOX (Margaret). The registration went smoothly; typical of the entire day's events. The thorough preparation by W3TMZ and W3XO was evident throughout.

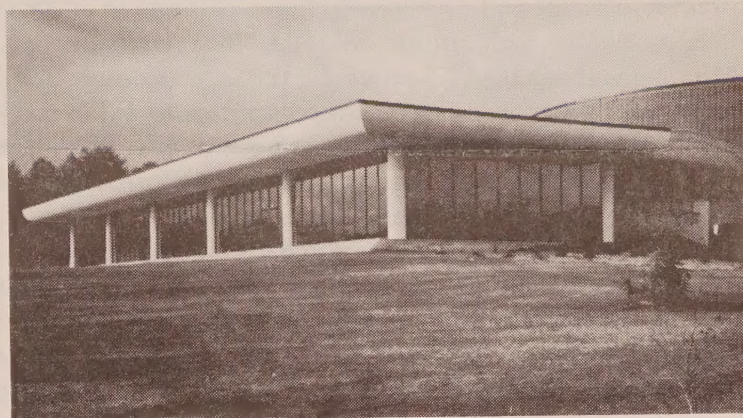
The day was divided neatly into three modules. The morning session, afternoon session and the evening Annual Meeting.

The morning session opened with a welcome by W3TMZ, Jack Colson, an employee of the Applied Physics Laboratory (APL). Jack introduced Dr. A.G. Schulz, Associate Director of APL. Dr. Schulz explained how APL was founded during World War II and how hams had always been well-represented since scores of APL employees were amateurs. He went on to explain how APL had been involved in space technology from the start; that navigation satellites were largely pioneered at APL. A film was then shown amplifying on Dr. Schulz's assertions.

Next another APL employee and co-organizer of the symposium W3XO, Bill Tynan, explained the role of the APL Amateur Radio Club.

AMSAT's Chairman of the Board W6SP, John Brown, then welcomed all the attendees on behalf of AMSAT.

The symposium then began in earnest with a sparkling presentation by Vice President for Engineering W3GEY, Jan King. Jan spoke about OSCAR 10, its design, construction and an assessment of the results of the effort. For much of his well-attended presentation Jan spoke to a slide set assembled by W4PUJ. Many of the slides had not been seen before in public. In any case Jan's unique perspective of the program added immensely to the overall understanding of the program according to the



The meeting place

comments of those viewing the program. Of especial interest were Jan's comments regarding the value of software flexibility in AO-10. The ability to rapidly reconfigure and adjust was critical to saving the spacecraft after the post-separation incident when the launcher sent AO-10 into a near fatal attitude and spin. It was only DJ4ZC's quick, expert hand on the controls, said King, that alleviated total disaster. Nevertheless, he concluded, the spacecraft is very usable and should prove a valuable resource for years to come.

After Jan's presentation the symposium separated into two concurrent sessions. In the auditorium KO5I, Doug Loughmiller explained basic AO-10 ground station requirements. In adjoining classrooms KA9Q, Phil Karn detailed some of the intricate engineering challenges involved in AO-10 and some of the challenges remaining to be faced. Phil highlighted the prospect of coming eclipses and the required attitude changes they will dictate.

Following these talks and immediately before lunch N2CF, Bill Lazzaro, and W3XO demonstrated live AO-10 QSOs. Also on display were packet radio transceivers, computers and software. G3IOR demonstrated a program for the Timex 2000 developed by GM4IHJ. W5SXD demonstrated a special purpose computer for producing

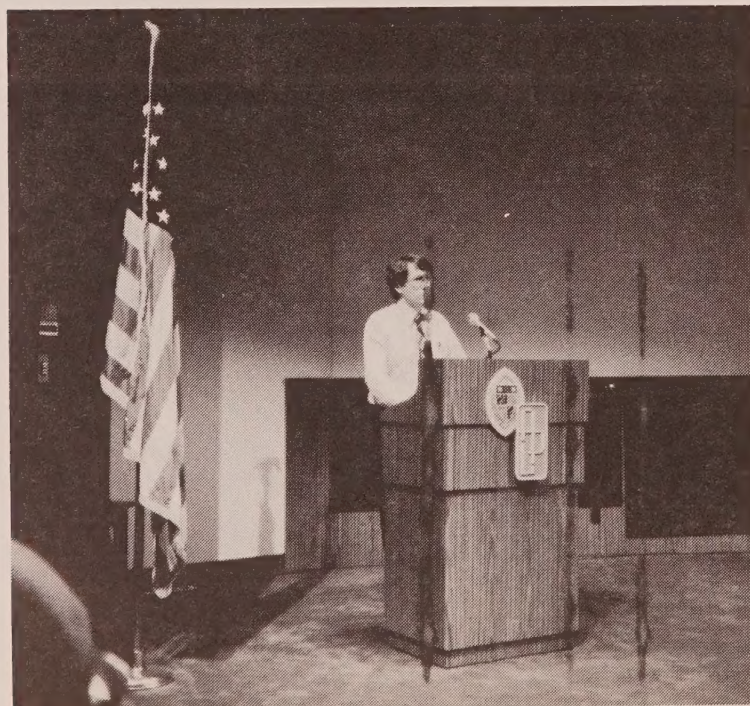
One of the most prominent Amateurs in the world is gone: Vic Clark, W4KFC, ARRL President died suddenly November 25, 1983 in the Washington, D.C. area.

computer graphics of satellite tracks. Prizes for the AMSAT membership drive were on display too. The Grand Prize Yaesu FT-726R (demonstrator furnished by Electronic Equipment Bank) was the center of attention. Other prizes donated by Mirage, KLM, KJI, Spectrum West, Spectrum International, Advanced Receiver Research and Lunar Electronics were likewise on display.

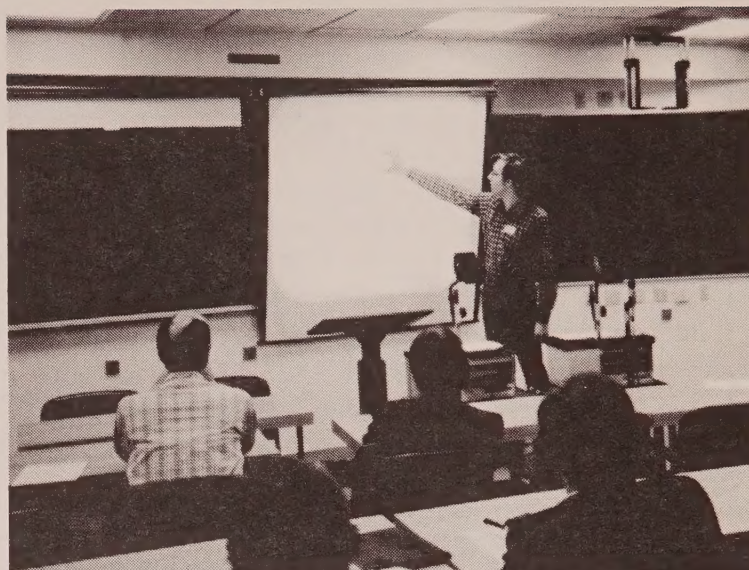
The buffet lunch was served to more than 100 enthusiastic guests.

The afternoon sessions began with K2UBC, Marty Davidoff, and K2ZRO, Kaz Deskur, explaining the fine points of map-based satellite tracking systems. They spoke in the auditorium while a panel discussion on Packet Radio, PACSAT, UoSAT-B and packets on AO-10 carried forth in the classrooms. Panelists consisted of NK6K, W3IWI and KA9Q with others chiming in at times. Next in the auditorium N5AHD, Bob Diersing, who manages the AMSAT Software Exchange Bulletin Board system, told of using personal computers to aid in tracking satellites and making access predictions. Bob's talk was followed up with one by Jan King who provided the latest assessment of Mode L operations. According to King it appears at least one and possibly two failures have marred the Mode L performance although it remains usable by stations able to field the 25 kW EIRP estimated to be required. Jan suggested that the 1269 MHz receive antenna relay may have stuck and there appears to be a problem with a Mode L transmitter power stage. Jan said it appeared to be running in a Class C domain. A switching regulator failure could cause this, King said.

After a coffee break at 1430, the symposium visitors were treated to a glimpse of a new organization now forming, the Independent Space Project Committee. Its prospectus was presented by Bob Molz. Following this talk K8OCL, John Champa spoke on the Solar Sail Project. John's talk was followed by one given by Jesse Eichenlaub on the Amateur Space Telescope Project of the Independent Space Research Group.



Jan King, W3GEY



Phil Karn, KA9Q

Meanwhile, in the adjacent classrooms W3GEY, W4PUJ and KA9Q were addressing a full-house on present and future spacecraft technology. They were followed by K2UBC with an abbreviated reading of his paper on circularly polarized antennas (which appears in *ORBIT* #15).

Back in the auditorium Amateur Space Telescope had yielded to W3XO with an STS-9 W5LFL Ham-In-Space update. Finally W3IWI wrapped up the symposium with a brief talk on World-wide amateur satellite projects now under way or planned for the future. Tom touched briefly on Phase 3C, UoSAT-B, PACSAT, ARSENE, JAS-1 to name a few.

Following a full day of listening and discussing, the crowd milled about in the traditional cocktail hour. Many old acquaintances were renewed and new friends were made and introduced to still newer friends. Many familiar voices heard on OSCARs became (at long last) associated with faces.

The buffet dinner was enjoyable and tempted several to neo-gluttony. Others, slightly more reserved, were content to savor the dessert, coffee and to enjoy the pleasant after dinner repartee.

At 1930 the annual meeting began with President W3IWI at the podium. The Directors election results were announced as follows:

Jan King, W3GEY, 1131 votes
John Browning, W6SP, 999 votes
John Pronko, W6XN, 790 votes
John Henry, VE2VQ, 720 votes
Jack Colson, W3TMZ, 679 votes
John Montague, WØRUE, 458 votes
Wray Dudley, W8GQW, 369 votes

According to the Bylaws, W3GEY, W6SP, W6XN, VE2VQ are elected Directors. W3TMZ and WØRUE become First and Second Alternate Directors, respectively. One wag observed that it seemed to help if one's given name began with "J"!

Several honored guests were present at the meeting including distinguished visitors Vic Clark, W4KFC, ARRL President; Dave Sumner, K1ZZ, ARRL General Manager; Paul Rinaldo, W4RI, ARRL Technical Department Manager; Jay Holladay, W6EJJ, Southwest Division

Director. Also on hand were members of the ARRL Forward Planning Council including AMSAT Chief Area Coordinator Jim McKin, W0CY.

K1ZZ presented a special plaque to Marty Davidoff, K2UBC, honoring him for his efforts in connection with Marty's forthcoming book, *Satellite Experimenter's Handbook*. The ARRL publication will be shipped beginning in 4 weeks and has been heralded widely for its potential to upgrade the amateur satellite community's insight to the finer points of the hobby. The book will be available from AMSAT Headquarters for \$10 postpaid, U.S., Canada, Mexico; \$11 elsewhere. ASR is told orders for the book will be accepted beginning 1 Dec. 83.

W3IWI spoke on some ongoing programs and what is needed to maintain a healthy organization. He acknowledged numerous individuals and teams that had contributed to the successful year past experienced by AMSAT. (Too many to mention.)

The meeting adjourned with all expressing thanks for a splendid program.

ASR spoke with a number of attendees who felt the program should be built into a two day event next year. G3IOR in particular expressed this wish since there were so many good speakers and he found it impossible to attend as many as he would have cared to.

The entire day's events were videotaped by technicians from APL. According to W3TMZ arrangements are being made to edit the material for distribution through the AMSAT Videotape Library managed by WB0GAI. Watch ASR for word of availability of these program tapes. The desire here is to provide excellent program material for club meetings. The materials might be partitioned in modules by subject so the local club program committee can more easily evaluate suitability.

All in all the Space Symposium elicited great praise for its organization, the quality of the speakers and their program materials. ASR congratulates the organizers, helpers, speakers and officials who made it a sparkling success! Those who missed it will want to reserve early for next year!



Part of the crowd

W5LFL Launches 28 November

The ARRL has supplied the following for tracking STS-9 and W5LFL in orbit:

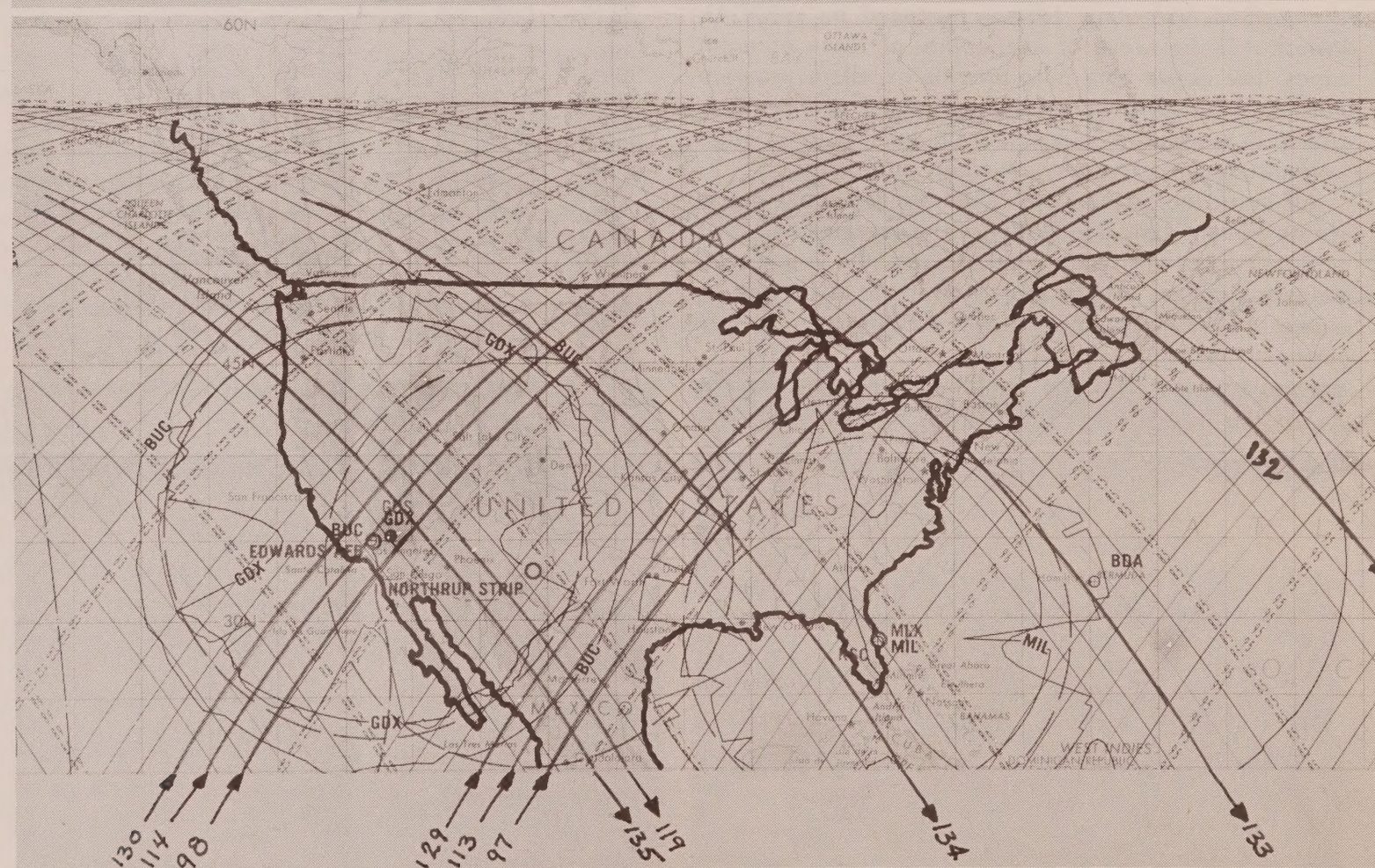
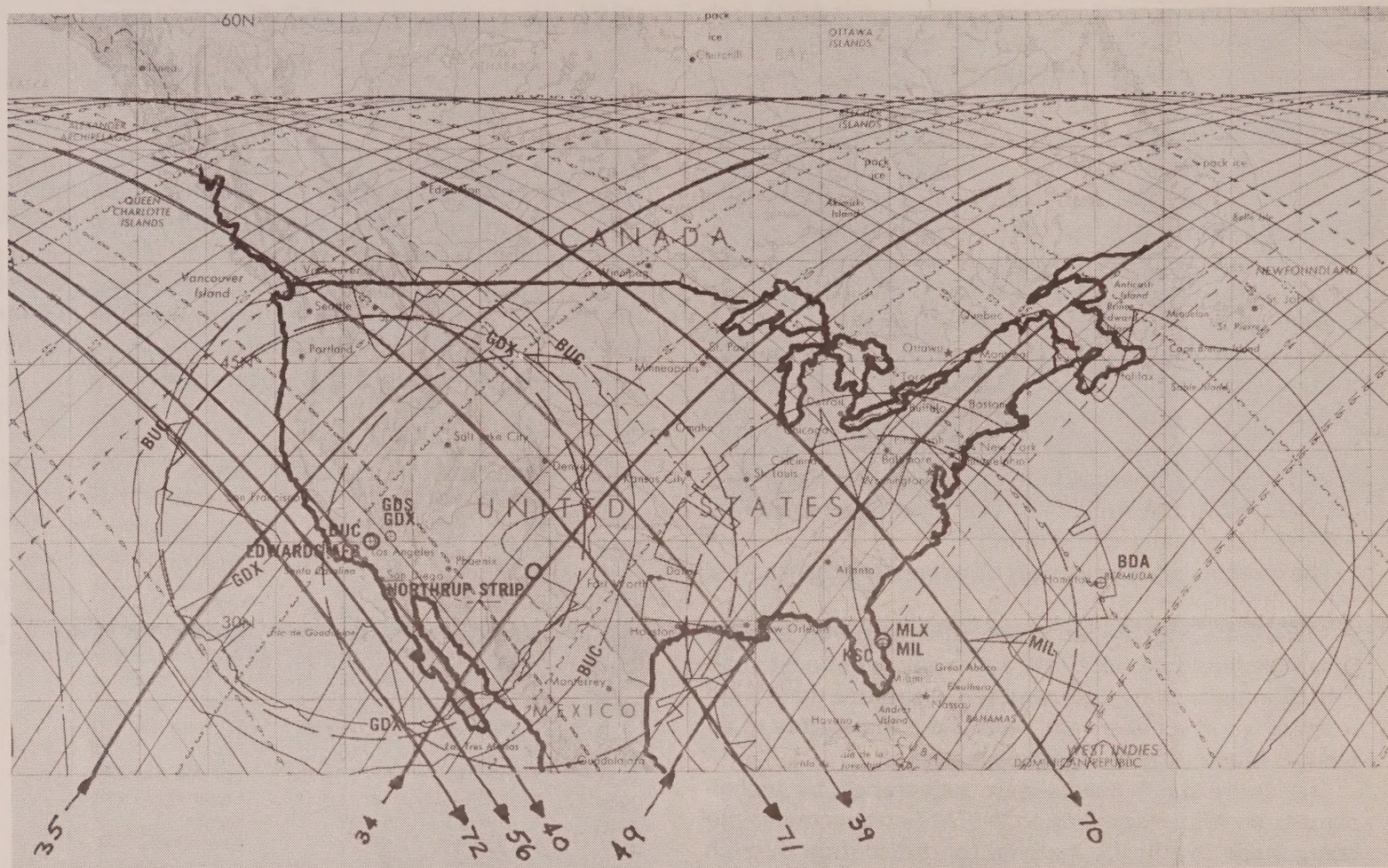
NASA has announced more details of W5LFL's STS-9 operating schedule. These are the Orbits, Acquisition of signal, LOS of signal and area covered. In the Table, the Orbit Number is followed by an "A" or "D". "A" is for ascending and "D" is for descending. The Time, D (Days), HH (Hours), and MM (Minutes), is expressed in Mission Elapsed Time (MET) and can be calculated by adding this amount of time to your actual local launch time.

ORBIT #	AOS			LOS			AREA
	D	HH	MM	D	HH	MM	
034A	2	01	10	2	01	25	Central US
035A	2	02	43	2	03	00	Western US
039D	2	09	00	2	09	25	Central US
040D	2	10	33	2	10	45	Western US
049A	2	23	27	2	23	47	Eastern US & Mexico
056D	3	10	15	3	10	32	Western US & Mexico
070D	4	07	05	4	07	25	Eastern US
071D	4	08	35	4	08	55	Central US
072D	4	10	10	4	10	25	Western US
092D	5	15	55	5	16	05	Japan
093A	5	17	00	5	17	20	Spain & Europe
094A	5	18	41	5	18	50	England & Europe
094D	5	19	11	5	19	26	Australia
097A	5	22	55	5	23	23	Central US
097D	5	23	28	5	23	40	Europe
098A	6	00	30	6	00	48	Western US
0108D	6	15	46	6	15	56	Japan
0109A	6	16	48	6	17	04	Spain & Europe
0110A	6	18	24	6	18	36	Europe
0110D	6	19	04	6	19	14	Asia
0113A	6	22	42	6	23	05	Central US
0114A	7	00	15	7	00	31	Western US
0119D	7	08	07	7	08	20	Western US
0125A	7	16	42	7	16	50	Spain & Europe
0126A	7	18	17	7	18	24	Europe
0126D	7	16	52	7	19	02	Australia
0129A	7	22	29	7	22	50	Central US
0130A	8	00	10	8	00	20	Western US
0132D	8	03	00	8	03	12	Canada
0133D	8	04	44	8	05	06	Northeastern US
0134D	8	06	18	8	06	48	Central US
0135D	8	07	45	8	08	07	Western US

QSL To: ARRL, 225 Main St., Newington, CT 06111.
Please send S.A.S.E. and mark envelope QSO or Reception Report.

STS-9 Orbital Elements Courtesy of KS5Y

Ref Epoch	83 335.58209491
(MET 2d 21h 58m 13s; orbit #48)	
Inclination	57.01540
Right Ascension	193.1900
Eccentricity	0.000763
Argument of per.	355.91043
Mean Anomaly	4.08295
Mean Motion	16.10648
Drag Factor	0.002609
SMA	6623.16



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